

REMARKS

Claims 1-44 and 49-77 are pending in the application. Claims 45-48 have been canceled pursuant to a restriction requirement. Claims 1-44 and 49-77 have been rejected.

Rejections under 35 U.S.C. § 102(b)

Claims 49-50, 52, 63 and 70 have been rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,843,657 to Liotta et al. (hereinafter "Liotta").

Applicants respectfully note that Liotta is an improper reference under 35 U.S.C. §102(b). Liotta, a U.S. patent, has a publication date of December 1, 1998, which is not "more than one year prior to the date of application for patent" of the present invention, which is at least December 4, 1998. Applicants respectfully request citation of the proper reference or the proper grounds of rejection for these claims if any are available.

In the event another ground of rejection under 35 U.S.C. §102 is available, applicants herein respond to the Office's remarks. First, a claim is only anticipated if each and every element as set forth in the claim is found either expressly or inherently described in a single prior art reference. MPEP §2131. The preamble of independent claim 49 states that an "integral portion of a biological reaction vessel" is claimed. The preamble of claim 63 states that "a microcentrifuge tube cap, comprising an integral portion of a biological reaction vessel" is claimed. As stated in the specification on page 4, lines 17-18, "there is a particular need for an LCM consumable that integrates an LCM film into the interior of an analysis container." Furthermore, at page 9, line 7, the specification states that the "sample carrier 300 can be a polymeric cap" and at page 18, lines 5-6, the specification states that the "cap 1120 is an integral portion of the biological reaction vessel 1100." At page 11, line 5, the specification states that in "a preferred embodiment, the cap is sized to fit in a standard microcentrifuge tube." In one variation, the carrier is shaped like a cap for integration with a vessel to transfer the captured specimen for post-LCM processing. Liotta does not disclose, teach or suggest an "integral portion of a biological reaction vessel" or "a microcentrifuge tube cap." In particular, a LCM

carrier that is configured to mate with a biological reaction vessel or a microcentrifuge tube is not disclosed, taught or suggested in Liotta. Therefore, Liotta does not anticipate claims 49-50, 52 and 63.

With respect to claim 70, claim 70 is dependent from claim 64, which calls for a plate and a cap coupled to the plate. Applicants direct the Office to the specification of the present invention; in particular, applicants direct the Office to page 8, lines 17-30 and page 9, lines 23-31 and page 10, lines 1-21, and generally to FIGs. 1, 2, 5, and 6. It is clear from these pages of the specification and the embodiments depicted therein that Liotta does not disclose, teach, or suggest a plate coupled to one or more caps as disclosed by the present invention. Therefore, this claim is also allowable.

Rejections under 35 U.S.C. § 103(a)

Claims 1-44, 51, 53-62, 64-69, 71-77 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,843,657 to Liotta et al. (hereinafter “Liotta”) in view of U.S. Patent No. 5,427,950 to Shigematsu et al. (hereinafter “Shigematsu”) and further in view of U.S. Patent No. 3,995,941 to Nagahara et al. (hereinafter “Nagahara”).

With respect to claims 1-44, 51, 53-62, 64-69, 71-77, the Office states that “Liotta does not disclose an integrally formed structural feature that protrudes and provides a controllable spacing between the LCM film and the sample” and that Shigematsu discloses a “method for controlling the space between two surface by providing protrusions of a fixed height or a spacer” and that “Nagahara discloses an integrally formed spacer.” Paper No. 24, pages 2-3. Applicants traverse this rejection.

In order to establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference must teach or suggest all the claim limitations. MPEP §2143. To

establish a prima facie case of obviousness, there must be some suggestion or motivation to modify or combine the reference teachings. MPEP §2143. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in the applicant's own discourse. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir. 1991).

As stated in the specification, "[t]here are a variety of techniques for building a noncontact LCM transfer film and/or carrier. The purpose of the noncontact LCM approach is to provide a method for the elimination of problems associated with nonspecific binding of tissue to an LCM film. In more detail, if a sample slide has areas with loosely attached cells, these portions of sample can be lifted mistakenly from the slide due to nonspecific attachment to the LCM film. That is, these areas stick to the film even though they were not illuminated by the laser. If these portions are transferred to the reagent vessel they will be digested by the reagents and appear as contaminants in the sample. It is important to prevent the loosely bound tissue areas from contacting the film. "One method for preventing the contact of the film to areas of tissue that might nonspecifically transfer is to offset (distance) the film a few microns from the tissue sample." Specification, pg. 13, lines 11-21. Liotta, Shigematsu and Nagahara do not disclose, teach or suggest nonspecific transfer and ways of avoiding nonspecific transfer through noncontact LCM. In fact, Liotta teaches away from non-contact LCM by disclosing contact LCM as shown in FIGs. 2 and 8 of Liotta. The Liotta specification at col. 12, lines 57-58 states that "[a]s shown in FIG. 8b, the transfer surface 30 is brought into contact with the cellular material sample 33." The present application recognizes that non-specific transfer would occur in such placement of the transfer film in areas of the specimen 33 outside of area "A" as shown in FIG. 8d. There is no suggestion or motivation in Liotta to space the transfer film from the specimen and for forming protruding features to space the LCM film from the sample as one form of non-contact LCM. Similarly, there is no suggestion or motivation in either Nagahara or Shigematsu to space the transfer film via protruding features.

With respect to Nagahara, Nagahara does not mention laser capture microdissection. Nagahara pertains to liquid crystal cells and does not disclose, teach or suggest protruding features for avoiding nonspecific transfer. In Nagahara, the two surfaces are spaced to form a cell in which a liquid crystal is retained. The liquid crystal apparently contacts both surfaces. Furthermore, the two surfaces in Nagahara are permanently attached and are not separable. The two surfaces in Nagahara are sealed together. “[A] completely hermetic seal is ensured.” Nagahara, col. 5, lines 50-51. “Thereafter, the resulting assembly is baked one-piece.” Nagahara, col. 5, lines 14-15. The “planar element and the assembly is baked at a temperature of 400 °C to 550 °C for about half an hour to about 2 hours.” Nagahara, col. 3, lines 23-25. Nagahara teaches away from LCM by disclosing sealing the two surfaces together whereas LCM requires the two surfaces to be separable. A proposed modification cannot change the principle of operation of a reference. MPEP §2143.01. If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the reference are not sufficient to render the claims prima facie obvious. The teachings of Nagahara would change the principle of LCM operation and vice versa. In LCM, the surfaces need to be separable such that the tissue attached to the transfer film can be removed when the transfer film is lifted. Similarly, the teachings of Liotta would change the principle of operation of Nagahara such that a removable surface in Nagahara would render Nagahara useless for its intended purpose of retaining a liquid crystal in between the surfaces. Nagahara, col. 5, lines 1-8. Furthermore, in LCM, the space between the two surfaces is not filled with liquid crystal, nor are the two surfaces sealed into one unit, nor is LCM performed with the two surfaces baking at temperatures that would destroy the tissue. There is no appreciation of LCM methods in Nagahara. In fact, Nagahara teaches away from LCM by sealing the two surfaces together without regard to tissue insertion, removal and cell capture. Doing so would render LCM useless. The Office is reminded that the present invention uses protruding features to space the transfer film from the surface of the specimen. There is no biological sample in Nagahara. Nagahara is at cross-purposes with laser capture and the art renders each other useless

for their intended purposes. For these reasons, the claims are nonobvious and in a condition for allowance.

With respect to Shigematsu, Shigematsu discloses a method for preparing a sample for radioactivity measurement. Specifically, in Shigematsu, a sample is prepared by being crushed between two surfaces to a thickness that is predetermined by a spacer located between the two surfaces. In Shigematsu, the sample is “compressed to give a thin section of substantially uniform thickness.” Shigematsu, col. 2, lines 3-33. Shigematsu provides “means to uniformly press and crush the frozen biological sample containing a radioactive substance consisting of two opposite rigid planes which can be separated with a fixed space to compress the sample to a substantially uniform thickness.” Shigematsu, col. 2, lines 35-41. The thickness to which the sample is crushed is equal to the fixed distance between the two rigid planes. Shigematsu, col. 2, lines 62-65. In essence, Shigematsu teaches away from spacing a transfer film from the sample by disclosing the contacting of biological sample between two rigid planes. Shigematsu, col. 3, lines 8-11. There is no spacing away from the sample in Shigematsu. Conversely, figure 9 of Shigematsu illustrates how a sample 13 is brought into contact with another surface 11 and pressed between two surfaces 11 and 12. In contrast, in the present invention, the structural features are used to form a controllable spacing between the transfer film and the sample. Bringing the transfer film in contact to crush the sample is antithetical to principle of operation of the present invention, which is to avoid such contact that would obviously result in nonspecific transfer when applied to LCM. For these reasons, the independent claims and dependent claims of the present invention are not obvious in view of the prior and therefore in a condition for allowance.

The Office has also made comments with respect to other aspects of the invention found in dependent and independent claims such as a plate assembly, scattering media, hot baking, a refractive index matching transparent glue, negative draft, diffuser, a pedestal, a release layer, a transparent film and a plano-concave void. None of these elements are disclosed, taught or suggested in the prior art, nor are they obvious modifications known to one skilled in the art.

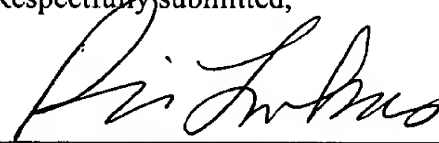
Applicants request the Office to provide where such teachings are found. Conclusory statements, without more, made by the Office in such regard do not satisfy the standards for establishing a prima facie case for obviousness.

In view of the foregoing remarks, applicants respectfully submit that the application is in a condition for allowance, and action toward that end is earnestly solicited. In the unlikely event that the transmittal letter is separated from this document and the Patent Office determines that an extension and/or other relief is required, Applicant petitions for any required relief including extensions of time.

Respectfully submitted,

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